

Appl. No. 09/681,571  
Amdt. Dated 21 June 2005  
Reply to Office action of 9 June 2005

### **REMARKS/ARGUMENTS**

The Final Office Action of 22 March 2005 and the Advisory Action of 9 June 2005 have been carefully considered. Applicant notes that the Examiner has removed the rejection of claims 1-17 under 35 USC 102(b) and is maintaining the rejection of claims 1-17 under 35 USC 112, first paragraph, on enablement, the rejection of claims 1-17 under 35 USC 112, first paragraph on written description, and the rejection of claims 1-3, 5, 7-9, and 11-17 under 35 USC 103(a). New claim 18 was added. Claims 1-18 are in the application.

An Applicant Initiated Interview Request Form is attached herewith.

#### **35 USC 112, first paragraph**

Applicant respectfully traverses the rejection of claims 1-17 under 35 USC 112, first paragraph. The Office Action references an enablement rejection on page 3 and a written description rejection on page 5.

As stated in Applicant's earlier Amendment:

With respect to enablement, Applicant respectfully traverses the ... statement that "advanced analytical methods" and "time stepping finite elements with rotation" mean that one of ordinary skill on the art would require too much experimentation. Applicant respectfully submits that commercially available products are available and were available at the time of filing. Three commercial vendor packages include, for example, Maxwell™ simulation software available from Ansoft Corp. (<http://www.ansoft.com>), Flux3D simulation software available from Magsoft ([http://www.flux3d.com/flux3d\\_index.html](http://www.flux3d.com/flux3d_index.html)), and MagNet simulation software available from Infolytica Corp. (<http://www.infolytica.com/en/products/magnet/>). Additionally, Applicant further indicated in paragraph 13 that determination can be made by physical testing itself. This would not even require such software or "undue experimentation."

With respect to written description, Applicant has clarified the fact that what is being measured is voltage or current and what is being minimized is voltage. Further, as can be seen from the statements above, paragraph 13 mentions both physical testing and software. Such software is and was available. Applicant was not trying to claim a specific type and was merely indicated that physical testing or simulation were paths toward selecting the design with minimal keybar voltage.

As stated in Applicant's Response to Final Rejection:

[W]hat was known is that, given a particular parameter and design constraints, such "advanced" tools can be programmed to find optimum settings. Basically, such software tools enable a user to input the design to be validated and to receive information about the design (meaning what is the effect if X keybars are used and/or if the phasebelts are offset by Y degrees) – they do not create the design itself. They are not required, but can save time and cost as compared with physical testing. ...

Applicant continues to be convinced that no undue experimentation would be required to practice the invention. Should the Examiner continue to believe such experimentation would be required, Applicant is submitting an Interview Request for to arrange for a conversation between the inventor and the Examiner.

Applicant respectfully submits that claims 1-17 are in full compliance with the requirements of 35 USC 112, first paragraph. Withdrawal of the rejection of claims 1-17 under 35 USC 112, first paragraph, is respectfully requested.

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35 USC 103(a) rejection of claims 1-3, 5, 7-9, and 11-17

Applicant respectfully traverses the rejection of claims 1-3, 5, 7-9, and 11-17 under Perkins et al., "Special Problems in the Installation of Large Electrical Machines," Power Engineering Journal, Jan. 1992, Vol. 6, Issue 1, pp. 21-31 (hereinafter "Perkins") in view of Gieras et al., "Calculation of Synchronous Reactances of Small Permanent-Magnet Alternating-Current Motors: Comparison of Analytical Approach and Finite Element Method with Measurements," IEEE Transactions on Magnetics, Sept. 1998, Vol. 34, No. 5, pp. 3712-3720 (hereinafter "Gieras").

Applicant respectfully submits that the applied references do not teach, suggest, or disclose (either individually or in combination) the following aspects of the independent claims:

**Claims 1, 11, and 16: determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts; and selecting a position of the keybars with respect to a position of the phase belts which provides minimal keybar voltage.**

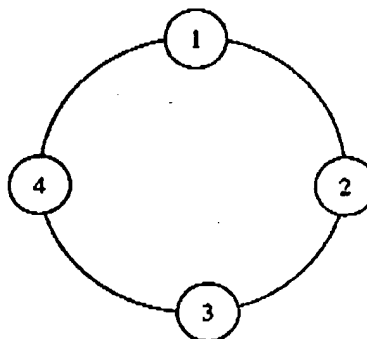
**Claims 5, 13, and 17: determining effects on at least one of keybar voltage or keybar current of adjusting positions of the keybars with respect to positions of the phase belts, adjusting the number of keybars, and adjusting the number of stator slots; and selecting a position of the keybars with respect to a position of the phase belts, a number of the keybars, and a number of stator slots which collectively provide minimal keybar voltage.**

**Claims 7 and 14: determining effects on at least one of keybar voltage or keybar current of adjusting the number of keybars; and selecting a number of the keybars which provides minimal keybar voltage.**

**Claims 9 and 15: determining effects on at least one of keybar voltage or keybar current of adjusting the number of stator slots; and selecting a number of the stator slots which provides minimal keybar voltage.**

For example, with respect to Claim 1, the Office Action (near top of page 9) states that Perkins "does not expressly teach the use of 'phase belts' or 'number of stator slots.'" Applicant submits that these are critical concepts of claim 1.

The Office Action cites Perkins page 23 (stator building) which talks about mechanical coupling of the keybars and page 28 (testing) which refers to testing of the cores. With respect to the stator building section, Applicant interprets the description as being directed to the "sequence of the [timing of the] welds" so as not to create any mechanical instabilities. As a simple example, welding in the order of 1, 2, 3, 4 will yield different mechanical dynamics than 1, 3, 2, 4. This is the type of assembly consideration referenced in Perkins.



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With respect to the testing section, this section does not reference the keybars or adjusting the keybars in any manner (much less any manner to provide minimal keybar voltage) as a result of the testing. Instead Perkins relates to testing to see if machine converts mechanical power to electrical power.

The above arguments were submitted in Applicant's Response to Final Rejection. The Examiner was not persuaded and provided the following remarks in an Advisory Action:

Examiner finds [the limitation] to be inherent in the teaching of "...electromagnetic testing of stator cores as well as high-voltage testing of stator bars on a daily basis as they were being installed." Examiner does not find it plausible that the testing was performed in order to find sub-optimal locations. Moreover, Electromagnetic and high-voltage testing does not correspond to Applicant's interpretation of testing for mechanical instability (see p.4, After Final amendment).

However, Applicant submits that the "stator bars" of page 28 (Testing) of Perkins are not "keybars" as claimed in Applicant's Application. The fact that these are two different bars can be seen readily from page 23 right column which references the keybars being threaded into dovetails of the laminations and page 24 right column which references the fitting of bars into slots and jointing these stator bars at the end of the core. The testing of such "stator bars" on page 24 does not appear to have anything to do with "keybar" location or testing.

Gieras does not overcome the above noted deficiencies of Perkins. Gieras does not disclose, teach, or suggest modifying keybar design to minimize keybar voltage. In Gieras, the phrase "phase belt" is used once to generally describe a group of conductors belonging to a particular phase of the machine that are placed in sequential order. The placement of the phase belt is not described as being optimal with respect to keybars.

Claims 11 and 16 have analogous recitations in comparison with claim 1.

Claims 7 and 14 refer to number of keybars as compared with the "phase belt positions" of claim 1. The basic arguments remain applicable, however, with respect to Perkins describing mechanical assembly techniques and verifying power conversion and Gieras likewise not being directed to minimizing keybar voltage.

Claims 9 and 15 refer to number of stator slots are compared with "phase belt positions" of claim 1. The basic arguments remain applicable, however, with respect to Perkins describing mechanical assembly techniques and verifying power conversion and Gieras likewise not being directed to minimizing keybar voltage.

Claims 5, 13, and 17 refer to a combination of phase belt position, number of keybars, and number of slots and are likewise believed to be in condition for allowance.

Each remaining claim depends from one of the above discussed claims 1, 5, 7, 9, 11, and 13-17.

#### New Claim 18

Claim 18 was added and also depends from claim 1. Claim 18 includes a recitation of physical testing. Support for this addition can be found in paragraph 13 of the Specification, for example.

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Summary

Accordingly, Applicant respectfully submits that the claims define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested.

Respectfully submitted,

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**Applicant Initiated Interview Request Form**

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Application No.: 09/681,571First named Inventor: Manoj ShahExaminer: Aval SharonArt Unit: 2123Status of Application: RCE being submitted 21 June 2005

## Tentative Participants:

(1) Manoj Shah(2) Ann Agosti(3) Examiner SharonProposed Date and Time of Interview: Examiner please call Ann Agosti (518 387 7713) to inform of date and time.

Type of Interview Requested: Telephonic

Exhibit To Be Shown or Demonstrated: ☐ Yes ☒ No

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**Issues To Be Discussed**

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Issues	Claims	Prior Art	Discussed	Agreed	Not Agreed
(1) 37 USC 112 (first paragraph)	1-17		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) 35 USC 103	1-3, 5, 7-9, and 11-17	Perkins Gieras	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Brief Description of Arguments to be Presented:

(1) Discussion of what is necessary to enable and describe the determination of effect on keybar voltage or current.(2) Perkins (relates to mechanical assembly and testing to see if machine converts mechanical power to electrical power, but not to keybar voltage minimizing) and Gieras (wherein the phrase "phase belt" is used once in the paper to generally describe a group of conductors belonging to a particular phase of the machine that are placed in sequential order, but does not have its placement described as being optimal with respect to keybars) do not appear to teach or suggest independent claims

An interview was conducted on the above-identified application on \_\_\_\_\_.

Applicant's Representative Signature

Examiner/SPE Signature

Ann M. Agosti

Representative

37372

Registration Number